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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
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SONG, SARAH U

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 06/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



### DETAILED ACTION

1. Applicant's communication filed on April 17, 2006 has been carefully studied by the Examiner. The arguments advanced therein, considered together with the amendments made to the claims, are persuasive and the rejections based upon prior art made of record in the previous Office Action are withdrawn. Claims 1, 2, 10 and 18 have been amended. Claims 19-22 have been added. Claims 1-22 are pending.

#### *Claim Objections*

2. Claims 1 and 2 are objected to because of the following informalities: Examiner suggests changing "it" to -the beam—to clearly distinguish what "it" is. Appropriate correction is required.

#### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-3, 5-9, 11, 13-17 and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikushima et al. (U.S. Patent 4,199,222 newly cited) in view of Huber (DE 199 58 547 A1 previously cited).**

5. Regarding claims 1, 2, 5-7 and 13-15 Ikushima et al. discloses a device for automatically centering a laser beam in a light guide 3, such as a monomode or multimode optical fiber, this device comprising a scatterer (i.e. roughened end surface) including an entry face for the laser beam, the volume scatterer being configured to scatter the laser beam and automatically center the

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beam in the optical fiber. The volume scatterer is cylindrical (“has the same construction as the optical fiber”, column 1, lines 49-51) and comprises a light reflector (i.e. cladding glass layer, column 1, lines 51-54) surrounding a side face. Ikushima et al. further discloses a lens (e.g. 19) placed on the entry face of the scatterer.

6. Ikushima et al. does not expressly disclose a volume scatterer.

7. Huber discloses a means for coupling a light source comprising a roughened end surface. Huber also discloses that the roughened end surface may be replaced by a volume scatterer in the waveguide. See Abstract.

8. Ikushima et al. and Huber are analogous art as pertaining to input couplers.

9. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Ikushima et al to comprise a volume scatterer in place of the roughened end surface, since Huber discloses the two to be art recognized equivalents.

10. Regarding claims 8, 9, 16 and 17, Ikushima et al. discloses a lens (E.g. 18) on an entry face, but does not expressly disclose a defocusing lens on an entry face, a reflector protruding beyond an entry face, or an auxiliary fiber placed on the entry face of the volume scatterer. However, defocusing lenses (e.g. collimators) are well known in the art for improving optical coupling characteristics. Additionally, GRIN fiber collimators are known in the art as auxiliary fibers for improving input coupling. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a defocusing lens or an auxiliary fiber such as a GRIN fiber lens on the entry face to optimize optical coupling characteristics. Also, it would have been obvious to one having ordinary skill in the art at the

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time the invention was made to provide the reflector protruding beyond an entry face for the purpose of protecting the entry face from damage.

11. Regarding claims 19 and 20, Ikushima et al. in view of Huber does not expressly disclose the volume scatterer to be made from a material having an absorption coefficient that is as small as possible. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the volume scatterer of a material having a minimal absorption coefficient for the purpose of minimizing attenuation through the volume scatterer.

12. Regarding claims 3, 11, 21 and 22, Ikushima et al. in view of Huber discloses the claimed invention but does not expressly disclose the thickness of the volume scatterer is equal to at least 100 times the wavelength. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the appropriate thickness of the volume scatterer since it has been held that where the general conditions of a claim are disclosed by the prior art, discovering optimum or workable values involves only routine skill in the art.

**13. Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikushima et al. in view of Huber as applied to claim 1 or 2 as applicable above, and further in view of Müller et al. (U.S. Patent 5,401,270 previously relied upon).**

14. Regarding claims 4 and 12, Ikushima et al. in view of Huber discloses the claimed invention but does not expressly disclose a polytetrafluoroethylene volume scatterer.

15. Müller et al. discloses a polytetrafluoroethylene volume scatterer.

16. Müller et al. is analogous art as pertaining to volume scatterers.

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17. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a polytetrafluoroethylene volume scatterer in the device of Ikushima et al.

18. One of ordinary skill in the art would have been motivated to make the modification in order to provide a cost effective device.

***Allowable Subject Matter***

19. Claims 10 and 18 are allowed.

20. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not disclose or suggest, either alone or in combination, the method of manufacturing the device in which a tubular light guide is used as a cutting punch.

***Response to Arguments***

21. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.


***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah Song whose telephone number is 571-272-2359. The examiner can normally be reached on M-Th 7:30am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on 571-272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Sarah Song  
Primary Examiner  
Group Art Unit 2874